

### Comparison of Medical Students' and Teachers' Perception about Clinical Educational Environment in Educational Hospital Wards

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**Background:** Clinical training has an important section in medical students' education. Creating a favorable learning environment plays an essential role in medical education. Since clinical teachers involve to clinical problem, clinical education environment evaluation can help to identify the negative and positive factors. This study was conducted to compare medical students' and residents' perceptions and their teachers of the hospitals educational environment using the Dundee Ready Education Environment Measure (DREEM).

**Methods:** This descriptive, analysis cross-sectional study was conducted in Kerman University of Medical Science, 2012. Using DREEM investigate the educational atmosphere four main clinical wards (Internal, Surgery, Pediatrics and Gynecology) in the educational hospitals of University. DREEM distributed to 230 participants, included 50 clinical teachers, 88 residents and 92 interns. Statistical analysis was done using SPSS 18. We were carried out ANOVA test to comparison means items.

**Results:** The overall DREEM is 161/200for interns, 157/200 for residents and 123/140 for teachers. Generally tend to positive. There were significant difference in Learning domain ( $P < 0.000$ ) and atmosphere ( $P < 0.000$ ). There was no significant difference in teacher performance domain (0.127).

**Conclusions:** DREEM scores are on the top of scoring except the perception of teachers in domain of learning that it can be causing of satisfis of their performance in learning environment. Participants assessed the educational environment as high level. Regarding the Perception of learning, teachers' performance, and learning atmosphere was viewed positively. So, it's better to keep quality in high level in clinical wards.

**Keywords:** Educational Environment, Clinical, DREEM inventory, Learning

### مقایسه درک دانشجویان و اساتید پزشکی از محیط آموزشی بالینی بخش های بیمارستانی آموزشی

**اهداف:** آموزش بالینی مهمترین بخش آموزش دانشجویان پزشکی است. فراهم آوردن محیط یادگیری مطلوب نقش مهمی در آموزش پزشکی ایفا می کند. از آنجاییکه استاد بالینی با مشکلات بالین درگیر می شود، ارزیابی محیط آموزش بالینی می تواند به شناسایی عوامل مثبت و منفی کمک کند. این مطالعه برای مقایسه درک دانشجویان، دستیاران و اساتید پزشکی از محیط آموزشی بیمارستان های وابسته به دانشگاه علوم پزشکی کرمان براساس ابزار DREEM انجام شد.

**روش کار:** مطالعه توصیفی-مقطعی-تحلیلی در سال ۱۳۹۱ در دانشگاه علوم پزشکی کرمان انجام شده است. با استفاده از پرسشنامه DREEM به بررسی محیط آموزشی چهار بخش بالینی (داخلی، جراحی، کودکان و زنان و زایمان) در بیمارستان های آموزشی دانشگاه پرداخته شد. پرسشنامه بین ۲۳۰ مخاطب توزیع شد که شامل ۵۰ نفر اساتید بالینی، ۸۸ نفر دستیار و ۹۲ نفر اینترن می باشد. تجزیه و تحلیل آماری با بکار گیری نرم افزار SPSS نسخه ۱۸ و آزمون Anova برای مقایسه میانگین ها انجام شد.

**نتایج:** امتیاز کلی پرسشنامه DREEM برای اینترن ها ۱۶۱/۲۰۰ و برای دستیاران ۱۵۷/۲۰۰ و اساتید ۱۲۳/۱۴۰ می باشد. به طور کلی تمایل به سمت مثبت داشته است. تفاوت معناداری در حیطه یادگیری ( $P < 0.000$ )، در حیطه جو آموزشی ( $P < 0.000$ ) وجود دارد. هیچ تفاوت معناداری در حیطه عملکرد اساتید مشاهده نشد (0.127).

**نتیجه گیری:** امتیازات پرسشنامه DREEM در بالاترین حد انتظار در حیطه یادگیری از منظر اساتید مشهود است که به دلیل رضایت از عملکرد اساتید از محیط یادگیری باشد. مشارکت کنندگان محیط آموزشی را در سطح بالا ارزیابی کردند. با توجه به نمرات حیطه های درک از یادگیری، عملکرد اساتید و محیط یادگیری، گرایش مثبت مشاهده می شود. بنابراین بهتر است کیفیت محیط یادگیری در سطح بالایی در بخشهای بیمارستان حفظ شود.

**کلید واژه ها:** محیط آموزشی، بالین، ابزار DREEM، یادگیری

### مقایسه ادراک طلاب و اساتید الطب في المجال التعليمي السريري في اقسام المستشفى التعليمي

**الاهداف:** إن التعليم السريري اهم قسم في مجال تعليم طلاب الطب و ايجاد بيئه تعليميه مناسبه يكون لها الدور الكبير في مجال التعليم السريري و بما أن الاساتذه يواجهون المشاكل السريرييه، لذا تقييم البيئه السريرييه يكون عامل مساعد لمعرفة نقاط القوه و الضعف. تم اجراء هذه الدراره لمقارنه ادراك الطلاب و المساعدين و الاساتذه من البيئه التعليميه في المستشفيات التابعه لجامعه کرمان الطبيه على اساس ادوات DREEM.

**أصول العمل:** هذه الدراره من النوع الوصفي المقطعي تم اجرائها في عام ۱۳۹۱ فدرش في جامعه کرمان للعلوم الطبيه . تم استخدام استماره DREEM لدراره البيئه التعليميه في اربعه اقسام سريرييه (الباطني ، الجرايمه ، الاطفال، النسائي و التوليد) في المستشفيات التابعه للجامعه. تم توزيع الاستماره بين ۲۳۰ مخاطب، ۵۰ استاذ سريري ۸۸ مساعد، ۹۲ طالب المرحله الاخره من الطب العام. تم تحليل المقطبات عبربرنامج SPSS الاحصائي نسخه ۱۸ و تم استخدام اختبار Anova لمقايسه المعدلات.

**النتائج:** النتيجة الكليه لاستماره DREEM للطلاب ۱۶۱/۲۰۰ و للمساعدون ۱۵۷/۲۰۰ و الاساتذه ۱۲۳/۱۴۰ و بشكل عام كانت نتيجه ايجابيه. هناك اختلاف ذوقيه في مجال التعلم ( $P < 0.000$ ) و مجال البيئه التعليميه ( $P < 0.000$ ) و لكن لم يكن هناك اختلاف ذوقيه في مجال اداء الاساتذه (0.127).

**الاستنتاج:** إن امتيازات استماره DREEM كانت في اعلى العدم المتوقع في مجال التعلم من خلال رؤيه الاساتذه و ذلك لاجل مستوى الرضا من اداء الاساتذه في بيئه التعلم. اعتبر المشتركون أن البيئه التعليميه في اعلى مستواياتها . نظرا الي علامات مجالات رؤيه التعلم. إن اداء الاساتذه و البيئه التعليميه كانت ايجابيه لذا يجب حفظ هذا المستوى العالي من كفيئه البيئه التعليميه في اقسام المستشفى.

**كلمات المفتاح:** البيئه التعليميه، السريري، اداء DREEM، التعلم.

### کلینکل تعلیمی فضا کے بارے میں اساتذہ اور طلبا کی نظر

**ہیک گراؤنڈ:** کلینیکل تعلیم میڈیکل تعلیم کا اہم ترین جز ہے۔ میڈیکل طلباء کے لئے مناسب تعلیمی فضا فراہم کرنا ان کی اچھی تعلیم کے لئے ضروری ہے۔ چونکہ اساتذہ کلینکل پڑھائی میں مشغول ہوجاتا ہے لہذا کلینیکل ماحول کا جائزہ لینے سے مثبت و منفی نقاط کا علم ہوسکتا ہے۔ یہ تحقیق کرام میڈیکل یونیورسٹی میں انجام دی گئی تھی اور اسے 'ڈریم' ٹول کے مطابق انجام دیا گیا ہے۔

**روش:** یہ تحقیق دوہزار بارہ میں انجام پائی تھی اور اس میں ڈریم سوالناموں سے استفادہ کیا گیا۔ اس تحقیق میں چار شعبے انٹرنل میڈیسن، سرجری، امراض اطفال، اور گائناکالوجی نے شرکت کی۔ یہ تحقیق طبی طلباء کو تعلیم دینے والے اسپتالوں میں انجام پائی۔ اس میں دو سو تیس افراد نے شرکت کی جن میں کلینیکل شعبے کے پچاس اساتذہ، اٹھاسی ریڈیڈنٹ، اور بانوے انٹرن تھے۔ ڈیٹا کا تجزیہ ایس پی ایس ایس سافٹ ویئر سے کیا گیا اور اوسط کا موازنہ کرنے کے لئے اینوا ٹسٹ سے استفادہ کیا گیا۔

**نتیجے:** ڈریم سوالنامے میں انٹرن کو دو سو میں سے ایک سو اکتھ، ریڈیڈنٹس کو دو سو میں سے ایک سو ستاون اور اساتذہ کو ایک سو چالیس میں سے ایک سو تیس نمبر ملے جس سے معلوم ہوتا ہے کہ سب نے اس تحقیق کو مثبت قرار دیا ہے۔

**سفارش:** ڈریم سوالنامے سے حاصل شدہ نمبروں سے معلوم ہوتا ہے کہ اساتذہ کی نظر میں طلباء کلینکل پڑھائی کو اچھی طرح سے سمجھ لیتے ہیں اور اسی کو سب سے زیادہ نمبر ملے ہیں۔ تحقیق میں شرکت کرنے والوں نے تعلیمی ماحول کو مثبت قرار دیا ہے۔ ان وجوہات کی بنا پر اسپتالوں میں کلینیکل تعلیم کے ماحول کو بہتر سے بہتر بنایاجائے۔

**کلیدی الفاظ:** تعلیمی ماحول، ڈریم ٹول، پڑھائی۔

## INTRODUCTION

Evaluation is a systematic and instrumental examination in order to enhance the efficiency of educational programs (1). Accreditation Council for Graduate Medical Education (ACGME) has stepped to detect one of the effective elements of trainee's learning \_ differences of learning environment (2). Roff and McAleer diagnosed that if enable to identify variables of the educational environment program and evaluate student and teachers' perception to reach teaching goals and get a basis for change the variables to improve educational experience (3).

if we identify variables of the educational environment program and evaluate student and teachers' perception, we will reach teaching goals and improve educational experience.

To ensure a good education should be control learning environment quality (4), thus effective learning high light to quality of educational environment (5).

Measuring the educational climate provides appropriate reaction to progress educational program (6). Significant learning has affirmative relation with student's Perception of educational climate that influences on trainee's learning experience. It influences why, how and what trainees learn (7). The teacher's viewpoint of the educational atmosphere was considered rarely (8). Trainee's perception of training environment is related to their clinical outcomes and the learner's consent for learning prosperity and achievement (5, 9, and 10). Maybe perceptions of the atmosphere caused by the enhance variety association students (11). Each event occurring in medical school links to environment and education (6). Learning environments is where learning happens (2), the base of training medical students is in the clinical wards and training medical residents is performing in the wards of hospital (12, 13).

As evaluation is time-consuming and costly (11), thus delivering high quality of medical education are important for educational environment evaluation in both clinical and academic areas. The evaluation process is an opportunity to identify any area that improvement is impossible (14, 15, and 8).

Different instruments are used for evaluation, that one of these is Dundee Ready Educational Environment Measuring (DREEM). DREEM is particularizing to the matchless environment tested by students on medical and health-related courses and it has developed by Delphi Panel and in Scotland Dundee University (16, 17).

DREEM utilize in whole world as a diagnostic tool to assessing perception of educational atmosphere, it has been used to recognized reigns of energetic and poor environment and also to contrast opposes medical education schools and measure the available with perfect educational environment (18, 10)

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Clinical instructor has complex activities and the most significant ones are to train and control practices and

students, monitor the health and safety of patients under students' treatment and cooperate with staffs (19).

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In Iran, a general medicine course lasts seven years, almost half of which comprises basic sciences and path physiology course and the remainder clinical sciences course. Like many other medical schools in Iran, Kerman University of Medical Sciences employs curriculum, hospital based approach. There have three educational hospitals. The aim of this study was to compare medical students' and teachers' perception about clinical educational environment in educational hospital wards in Kerman University of medical sciences.

## METHODS

This descriptive, analysis cross-sectional study was conducted at Kerman University of Medical Sciences in the center of Iran, in 2012. Approval to perform the study was provided by the Medical Ethic of the Kerman University of Medical Sciences.

Participants were selected from the students of 6 and 7 year studying general medicine (medical interns) and specialized medical students (residents); Internal, Surgery, Pediatrics and Gynecology and their teachers (faculty members of Kerman University). Inclusion criteria for students (interns and residents) and teachers participants were, a) being teacher or student at Kerman University, b) able to provide and complete an informed consent to take part in the study. Exclude criteria was who did not fulfill the questionnaires.

Using DREEM (Dundee Ready Educational Environment Measuring) to investigate the educational atmosphere four main clinical wards (Internal, Surgery, Pediatrics and Gynecology) in the educational hospitals affiliated to Kerman University of Medical Sciences.

DREEM was distributed to 50 teachers. And also was administered to 174 students (86 interns, 88 residents). But, the sample size was completed 63 Intern, 42 teachers and 73 assistant, due to the loss. Sampling was done census.

DREEM has 50 items in 5 following domains:

1. Student's perceptions of learning domain, SPL\_ 12 items, Maximum score=48.
2. Student's perceptions of teacher performance domain, SPT\_ 11 items, Maximum score=44.
3. Student's academic self-perceptions, SAP\_ 8 items, Maximum score=32.
4. Student's perceptions of learning atmosphere, SPA\_ 12 items, Maximum score=48.
5. Student's social self-perceptions, SSP\_ 7 items, Maximum score=28.

DREEM utilized for teachers with some little changes in accordance with the national culture, and in frame 35 item. The changes include deleted two domains of the DREEM inventory one of these is SAP; student's academic self-perceptions, and the others is SSP; student's social self-perception, because of the questions of these two domains include students' academic progress and their personal situation.

The internal consistency coefficient was calculated by Cronbach's alpha. Validity was confirmed in previous studies ( $r=0.76$ ) (20), but in this study the content validity (0.77) and reliability (0.76) was assessed.

In order to prepare the Persian version of DREEM, the original version of EREEM questionnaire was translated into Persian by two teachers (nursing education) who had good English knowledge and were well-experienced in the field of Medical education. Then, the Persian translation was given to another two teachers and was back-translated into English. Certain comparisons focusing on linguistic reform were made. In the next step, the revised Persian version was sent to a number of experts in the field of Medical education and the overall consensus over the content of questionnaire was achieved on the draft version in a separate meeting. The lasted version was then provided to the research team for further application and completion.

After the necessary arrangements and explaining the purpose of study, students have to complete a questionnaire. The total score is 200 for students and the residents, that the range of overall scores DREEM are as follow: 0-50 unfavorable, 51-100 semi favorable, 101-150 favorable, and 151-200 very favorable.

For teachers with three domains is 140 score that the range of overall scores DREEM are: 0-35 unfavorable, 36-70 semi favorable, 71-105 favorable, 106-140 very favorable.

The DREEM's scale is five subscale Likert, was: completely agree (5), agree (4), no idea (3), disagree (2), completely disagree (1).

Data was analyzed by using SPSS version-18. Descriptive statistics was used to calculate means and standard deviations of DREEM variables, total DREEM, and the five subscales

Inferential statistics was calculated to compare domains, mean using by Anova test (Post Hoc, Tukey's) and T-Test. Normal distribution was measured in all three groups using by one-Sample Kolmogorov-Smirnov Test. The level of statistical significance was taken at less than 0.05 ( $P < 0.05$ ).

## RESULTS

The DREEM inventory was completed by 84% of the teachers ( $n=42$ ), 82.9% of the residents ( $n=73$ ) and by 73.2% interns ( $n=63$ ) who has studied in the medical courses at the educational hospitals of Kerman University of Medical Science.

Of the 178 participants, 51.1% were male ( $n=91$ ) and 48.9%

were female ( $n=87$ ).

The total score for students' perceptions was out of 200 and teachers' perception was out of 140.

The total DREEM is 161/ 200(for interns), 157/200 (for residents) and 123/140 (for teachers) that generally tend to be positive.

Table 1 shows the maximum score of total DREEM inventory and its five subscales, mean, standard deviation, and percentage of all domains. The highest score was found in the domain of teacher's perception of learning (mean: 90.97, standard deviation: 10.30) and the lowest in the domain of intern's Social self-Perceptions (mean: 75.68, standard deviation: 16.17).

Table 1 presents the mean scores of DREEM inventory in three groups. There was significant difference of total DREEM score ( $P<0.002^*$ ).

## DISCUSSION

This is one of the few studies from our country about educational environment at undergraduate, postgraduate teaching and teachers at the same time using validated DREEM inventory. This study aimed to compare medical students' of six and seven year of study and residents' perceptions and their teachers of educational environment of main clinical wards at Kerman hospitals.

McAlear and Roff (21) created score explain as an approximate guide to interpret the domains. Using of these descriptors for the area scores the students, residents and teachers that perceptions of learning was teaching highly thought of (scores of 36-48), and their perceptions of the teachers was that they were moving in the right direction (scores of 23-33) and Model course organizers (34-44). Their academic self-perception for students and residents was Confident (scores of 25-32), as was their perception of the atmosphere A more positive attitude (scores of 25-36) and A good feeling overall (37-48). The students' social self-perception was not too bad (scores of 15-21) and very good socially (22-28). The total score is 200 for students and the residents, that the range of overall scores DREEM are as follow: 0-50 unfavorable, 51-100 semi favorable, 101-150 favorable, and 151-200 very favorable. For teachers with three domains are 140 score that the range of overall scores DREEM are as follow: 0-35 unfavorable, 36-70 semi favorable, 71-105 favorable, 106-140 very favorable. Total DREEM scores were high 161/200 for interns, 157/200 for residents and 123/140 for teachers very positive (favorable).

**Table1. Means and standard deviation scores DREEM and P-Value**

Domains	Means (SD)* interns	Means (SD) residents	Means (SD) teachers	P-value*
Perception of learning	77.18 (14.80)	78.02 (13.67)	90.97 (10.30)	0.000*
Perception of teacher performance	81.24 (11.48)	80.47 (9.67)	77.21 (9.20)	0.127
Academic-Self perceptions	84.22 (15.75)	82.87 (17.10)	-	0.209
Perception of learning atmosphere	79.99 (13.59)	76.82 (15.73)	88.74 (11.59)	0.000*
Social self-Perceptions	75.68 (16.17)	82.25 (13.53)	-	0.012*
Total DREEM score	80.58 (11.15)	78.72 (10.57)	85.88 (8.49)	0.002*

In a survey carried out at a medical school in England that used DREEM (22), the mean score was calculated as 124/200. In another investigation concerning eight teaching hospitals in Birmingham, England (23), the mean score was 139/200; and also, another study for interns (24), the mean score was 114/200. These values were lower than in the present study. One explanation is that interns and residents were satisfied with hospital educational environment.

In comparison with the results of Montazeri and colleagues (25) for teachers, the mean score was 93/140. The cause of higher score of present study may reflect that these teachers were fairly innovative in terms of providing a student-centered approach to education.

According to result, in the domain of perception of learning Significant Differences between three groups (interns, residents and teachers) were observed. This is in agreement to the study done by Badsar and colleagues (26), although is contrary to study conducted by Brown (27). It seems that in the hospitals apply standard models for clinical teaching process and the reason is the importance and notice to environment.

hospitals apply clinical teaching standard models, It seems that the reason is importance and notice to environment.

In our study no significant differences were observed between three groups in domain of Perception of teacher and performance. This is in agreement to that what reported by Semantic (28), but is contrary to that report in a study carried out in Pakistan and India (24, 29). Maybe the reason is interest and ability of teachers to engage students in building learning experiences and other characteristics of a place where involved the physical environment.

In domain of Perceptions' atmosphere were observed Significant Differences in three groups. This is in agreement to that reported by Semantic, Bakhshialiabad and Montazari (30, 24) but in survey was done by authors, not found contrast with the present results. Maybe this phenomenon happens because almost all have positive attitude toward perceptions' atmosphere. And also Research at undergraduate

and graduate level is important in deciding career fields and future profession (31).

Considering to the results, comparing perceptions of students and their teachers, illustrated that all of them tended positively.

Should be noted that factors such as environmental education and teacher, and finally, social environment can be effective in improving learning. In many of studies emphasize to correlation among approaches and education atmosphere with academic Achievement.

Since Healthcare evolution requires a proper educational environment and objective-based by providing environment substrates can be improve educational system. In the current study, trainings environment of interns, residents, teachers are considered desirable, but the present situation suggests educational environments need to investigate further and deeper.

**Limitation and recommendations:** This research was conducted only on a small size of population. Therefore, research studies with much larger sample size would be required to ensure appropriate generalization of the findings of the study. Some teachers and students didn't tend to respond to the questionnaire.

It's better to conduct more research in the following areas:

1. Survey of education quality, Dentistry School-based
2. Compare the understanding students of dentistry and residents of the learning environment DREEM-based
3. The use of other measurement patterns learning environment
4. Assess the quality of the operating room environment; based-OREEM

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